

IN THE SPECIFICATION:

Please amend paragraph [0017] as follows:

[0017] According to Figure 1 a turbine housing 2 is connected with a flange 16 of the bearing housing, from which a cylindrical member 40 extends into the turbine housing 2 and carries shaft 2543 of a turbine rotor 4. The turbine housing 2 comprises an admission channel 9 which surrounds a turbine rotor 4, guiding a fluid which drives turbine rotor 4 (in the case of a turbocharger this fluid is an exhaust gas of a combustion engine), a rotor space 23 and an axial cylinder 10 through which the fluid, respectively the exhaust gas, will be discharged.

Please amend paragraph [0019] as follows:

[0019] The rotation of the control shafts 8 may be effectuated in known manner as shown e.g. in US-A-4 659 295, which shows an actuation device that comprises a control box 12, that controls the control movement of a pusher which is indicated in dash-dotted line, whose movement is transformed, through an actuation lever 13, an actuation shaft 14 which is connected therewith, and an eccentric 15 which engages into a hole of control ring 5 that is located next to the nozzle ring 6, into a small rotational movement of ring 5 around axis (R.L.([@])). The free ends or heads 18 of the control levers 19 are located in excavations 17 (see figure 4) of control ring 5, whereby the other ends of the control levers are fastened on the control shaft 8. Instead of excavations 17 which go all the way through in radial direction, one can also provide, in known manner, grooves on the radial inner side of the control ring 5 in which heads 18 are located, so that said heads 18 assure a certain pre-centering. As one will see from the following description, in the solution according to the invention, it is not necessary that this be the case, so that control ring 5 may have, other than in the state of the art, an even smaller diameter.

Please amend paragraph [0021] as follows:

[0021] This mechanism as described hereinabove is principally known. However, in the state of the art, means were used for the guiding and the centering of control ring 5 relatively to nozzle ring 6, which were fastened to the housing 2, which are difficult to mount and which nevertheless permitted only relatively small precision. As mentioned above there has been made already an approach to use roller bearings, but it was not feasible in practice because the roller bearing was to be mounted onto surfaces which needed precise treatment, whereas the rotor housing was subjected additionally to largely variable temperatures. In order to nevertheless obtain high precision with minimum constructional effort and minimum mounting effort, the roller bearing with its rolling-bodies 3 in the shape of cylindrical rollers, is located between control ring 5 and a bearing ring which is releasably connected to the rotor housing. The separation already of the releasable connected ring, serving as rolling contact surface, from the proper rotor housing protects said ring from an immediate heat transfer from housing 2 to itself. Additionally it is possible to mount control ring, roller bearing and releasably connected ring (together with the above mentioned additional elements) as a modular unit into the rotor housing, i.e. it enables premounting, which may of course be carried out much easier and automated.

Please amend paragraph [0022] as follows:

[0022] As can be seen from figures 1 and 2, control ring 5 comprises a rolling contact surface 20 which is oriented inwardly, and on which rollers 3 may roll. This is, however, only preferred in terms of tolerance compensation, because in practice it is preferred when rollers 3 maintain a certain radial play p (figure 2) in all operational phases between themselves and rolling contact surface 20 as well as between themselves and an opposing external contact surface 21, which forms a shoulder on nozzle ring 6.

Please amend paragraph [0023] as follows:

[0023] As it has been explained already with respect to Figure 4, only a small number of rollers 3 are required, if a cage for holding ring 22 is provided. Rollers 3 may run within holes of appropriate size, corresponding to the rollers, in the holding ring 22, rollers 3 may advantageously comprise axial extension 24 of smaller diameter, which engage into holes 25 in the ~~rolling~~holding ring 22, so that the latter provides the necessary distance between rollers 3 in peripheral direction as well as it holds them firmly on and against rolling contact surfaces 20 and/or 21. Referring to figure 6 further down, it will be explained that a like holding ring, more in the sense of a cage ring, may be used also for roller bearings with balls as roller bodies, which ~~rollersballs~~ 3 are held by this ring in certain distances from each other along the periphery of the rolling contact surfaces, whereby the cage ring comprises depressions which correspond to the balls. For ~~rollersballs~~ 3' (figure 6) this distance is less critical, because even if they are tightly arranged one next to the other, they will only have temporary contact between them, whereas with tightly packed rollers 3, linear contacts are produced, which would result in increased friction. Therefore the ~~roller~~holding ring 22 is of special advantage for the use of rollers as rolling bodies, especially as under the high rotational speeds of turbochargers, this friction can play a non-negligible role.

Please amend paragraph [0026] as follows:

[0026] As alternative hereto, and in order to hinder the rotation of nozzle ring 6, nozzle ring 6 can be provided with projections on its rim, which insert into corresponding depressions in the housing wall 2a (or of the ring 2c) or the projections may be provided on the housing and extend into the depressions of the nozzle ring, such as illustrated by line 33. Alternatively one of the two elements to be connected to each other may comprise axial projections, such as pins, which reach

into axial depressions such as holes. Of course there is another traditional possibility, to firmly screw nozzle ring 6 to a ring corresponding to shoulder 2e of the rotor housing 2.

Please amend paragraph [0028] as follows:

[0028] In figure 1g an alternative solution is illustrated for the VTG mechanism which can be pre-assembled in cartridge form. Here the rollersing-bodies 3' are not supported between control ring 5' and nozzle ring 6', but between control ring 5 and a further ring 38, which is releasably connectable with a portion of the housing, and said rollersing-bodies 3' are arranged on the side of the control ring 5' which is opposite to the nozzle ring 6'. The fixation of the cartridge may be carried out through a solidarization of ring 38 with nozzle ring 6' (not illustrated) such as through screwing or welding from radially inner of portions 6'' and 38'' of these two rings 6' and 38 which practically abut on one another. Figure 1a further shows a vane orientation mechanism 8, 19 as well as a cage ring 22, which houses parts of rollers 3'.

Please amend paragraph [0030] as follows:

[0030] The modular unit 26 of figure 1, as illustrated in figure 2, comprises the holding ring 22, located preferably between a radialinner flange 6' of the nozzle ring 6 and a radial flange 5' of control ring 5 which extends inwardly, and which thus delimits an axial open free space 5'', in which rollersing-bodies 3 are located. It is understandable that the cooperation of control ring 5 and of nozzle ring 6 (which is the further ring in the present embodiment) may also be designed reversely, inasmuch as control ring 5 may possess a radialinner flange 6' and nozzle ring 6 may have an axially open free space 5''. Actually its contact surface 21 forms, together with radialinner flange 6' such an axially open free space 21-6''. Figure 2 further illustrates that control shafts 8 may have a decreased diameter at their ends corresponding to vanes 7, which may be press fitted into borings of vanes 7.
(WP379903,1)

Please amend paragraph [0031] as follows:

[0031] Figure 3 illustrates a slightly modified unit 26a in a similar cut as in figure 2. The modification with respect to figure 2 concerns the use of a seal ring 27 within a seal groove 28 of nozzle ring 6. As shown from a comparison with figure 1, nozzle ring 6 is located in the region of housing wall 2a. One could think of different types of sealing arrangements; either sealing ring 226 is designed as a flexible sealing lip, which fits from below against wall 2a. This is in principle problem free, because these two parts do not move relatively to each other during operation. It is, however, also possible (or additionally employable) that sealing ring 27 may reach into a groove of wall 2a and thus forms a kind of labyrinth sealing, as well as combinations of both possibilities can be used. With the use of this type of sealing, one may inhibit soiling of roller bearing 3, 20, 21 coming from the area of the admission channel.

Please amend paragraph [0032] as follows:

[0032] A further modification of unit 26a with respect to unit 26 is that it comprises a fastening ring 29 which protects vanes 7 in a defined distance (see figure 1), which ring 29 may be fastened to ~~wall 2roll-22~~. It may however also be fastened to the nozzle ring 6 by means of bolts 30, whereby, in known manner, spacers 31 provide a slightly larger distance as the width of the vanes 7, in order to provide free movement of vanes 7 in all temperature ranges.

Please amend paragraph [0035] as follows:

[0035] According to the embodiment of figure 5, control levers 19 are not positioned on the side of control ring 5 which is opposite to nozzle ring 6, such as illustrated, but between those two rings 5, 6. Control ring 5 may be designed such as illustrated in figure 4, it may however also comprise pins 36 which reach into long holes 37. While control ring 5 again comprises a rolling
[WP379698:1]

contact surface 20 for ~~rollers~~-bearing bodies 3 which is radially inwardly oriented, the other, opposite rolling contact surface 21* is formed by a ~~long hole~~-separate-ring 37, which is housed within control ring 5 and its running contact surface 20. In axial direction then follows again holding ring 22. In order to immobilize movable holding ring 22 in axial direction an end ring 39 may be present which would be firmly connected to ring 38, such as for example through screws and spacers which are arranged around said screws, and which extend through holding ring 22. Substantially this end ring plays a similar role as the fastening ring of figures 3 and 4 on the other side, inasmuch as it assures the holding together of the modular unit, and it may be connected with the housing 2 in one of the described fashions.

Please amend paragraph [0036] as follows:

[0036] Herinabove reference has been made already to figure 6. It needs to be said, however, that the arrangement in figure 6 is similar as in the case of the embodiments according to figure 1 to 4. This means that ~~rollers~~-bearing 3*, 20*, 21* between control ring 5 and nozzle ring 6, is preferred. However it has to be emphasized again, that also in this case an arrangement according to figure 5 could be chosen in which the rolling bodies roll on a separate roller ring 37. It is also visible, that here ~~rollers~~-contact-surfaces 20*, 21* comprise depressions to receive ~~rollers~~-balls 3*, so that a specific cage ring (according to holding ring 22) is not necessary, although there may be space for it. If one wishes instead of the ~~rollers~~-depressed-surfaces 22* 20*, 21* to use cylindrical surfaces, it would certainly be necessary to use rollers 3 (see the previous examples) or one could use a cage ring according to the above discussed embodiment within a slot 22*. Further one can see in figure 6 that a sealing groove 286 is provided in which can be inserted either a sealing ring 27 (figure 3, 4) or a sealing ring which is located in the housing, and which can be formed as a piston ring in order to form a labyrinth sealing.

Please amend paragraph [0037] as follows:

[0037] As already mentioned, it is within the framework of the present invention that all characteristics which have been described with reference to a particular embodiment can be combined with themselves as well as with characteristics known from the state of the art. It has been mentioned that the embodiment according to the invention may preferably be employed for turbochargers, as it has been optimally conceived for operation parameters of such turbochargers. It is, however, also imaginable to employ the invention for operation with other types of fluids. Further it is understandable that the rotor housing may comprise several turbine rotors 4 and/or several admission channels 9 such as it has already been proposed in the state of the art. In the case of several rotors 4 one can provide several VTG mechanisms 26, ~~26a~~ [[26']], which may be the same or different, so that for instance one VTG mechanism corresponds to one of the described embodiments and another one to another embodiment.

Please amend the abstract as follows:

A turbine unit especially for a turbocharger, comprising having a rotor housing (2) having at least one admission channel (9) for a fluid, as well as a turbine rotor (4) which is supported in a turbine space (23) of the rotor housing (2) and wherein fluid is led into the turbine space (23) at its periphery through a VTG mechanism (5-8) of variable turbine geometry. The VTG mechanism (5-8) ~~has~~ comprises a nozzle ring (6) having a plurality of vane shafts (8) which are arranged in the form of a crown on the nozzle ring (6) and which carry on one of their ends vanes (7) which can be moved from a substantially tangential position (relative to the crown) into a substantially radial position, as well as at least one control element (19) in order to pivot the orientation of the vanes (7). Further an actuation mechanism (11) is provided which creates control movements that can be transmitted to the VTG mechanism (5-8) through a control ring (5). The control ring (5) and the nozzle ring (6) are coaxially arranged and adjacent to each other [WP120998C1]

whereby the control ring (5) is movably connected to at least one of the control elements (19). Control ring (5) is in contact with a guiding-and-centering arrangement, which comprises at least one roller-bearing (3, 20, 21) which has roller-bodies (3) that can roll on roller-contact-surfaces (20) of control-ring (5). Roller-bearing (3, 20, 21) is located between control-ring (5) and a ring (6, 38) which is possibly releasably connectable with rotor-housing (2), so that control-ring (5), roller-bearing (3, 20, 21) and the releasably-connectable ring (6, 38) can be mounted into the rotor-housing as a modular-unit (26).